

# **VICROADS TECHNICAL CAPABILITY BUILDING PROGRAM and CAPABILITY REPORTING TOOL**

**John Guest**

*Principal Advisor Technical Capability Building, People Services Division, VicRoads,  
60 Denmark Street, Kew, Victoria 3101, Australia*

*john.guest@roads.vic.gov.au*

## **ABSTRACT**

Once a baseline level of technical capability is possible for a Road Management Authority, there are numerous choices to be made in deploying enhanced technical capabilities to improve business performance. Identifying a set of technical capabilities valued by the organisation enables describing multiple development paths for staff with diverse technical business areas such as: road safety and network access; regional strategies; major projects; network and access planning; technical consulting and registration and licensing. Measuring and assessing capability according to five reference points: novice, advanced beginner, competent, proficient and expert level enables the organisation to position current capabilities against a useful scale. This further permits strengths and areas for development to be identified and actioned. Development solutions are targeted towards specific segments of the technical workforce breaking down the tradition of prescribing a 'one size fits all' approach to capability building. VicRoads approach to capability measurement is designed to maximise the impact of peoples' development on VicRoads business and target development resources to where they are needed most. Patterns and themes emerging from the data further encourages managers to consider recommendations from numerous on-the-job development configurations for individuals, groups and the business. The level of clarity afforded by the measurement program removes much of the guesswork associated with skills development across a broad and diverse technical workforce. An important feature of the VicRoads technical capability building program is linking and rewarding staff via the individual's Capability Development Plan (CDP). Other reporting features include using a seven-year forecast window to estimate probable long-term changes in capability levels due to shifts in workforce demographic. Technical capability building efforts overall are monitored at the executive level within a single organisational wide reporting and risk management framework. This paper explains the purpose of VicRoads Technical Capability Building Program, processes used for gathering and assessing capability levels across a diverse technical and engineering organisation and its benefits to managers.

## **1. BACKGROUND TO VICROADS TECHNICAL CAPABILITY PROJECT STUDY**

VicRoads has a significant experienced technical workforce spread throughout the state with both political and legislative requirements to manage the development of road safety, assets, asset maintenance and registration and licensing.

In 2004, VicRoads Corporate Management Group (CMG) identified that the emerging skill shortage of engineers (which is global) would require even greater utilisation of the knowledge and skills held by current staff as well as an increased emphasis on knowledge transfer from pre-retirees to our emerging technical leaders.

In May 2006 through to now, VicRoads People Services began a Technical Capability Building Program (TCBP) to help develop the knowledge and skills of some 1300 technical staff spread throughout metropolitan and regional centres. As part of VicRoads strategic review, VicRoads People Services were asked to develop a tool to assist business areas manage capability building and workforce planning. Other factors influencing the need to develop a tool were the unknown impacts of pre-retirees on sustaining or building VicRoads technical capabilities and the need to introduce a multi-faceted approach to manage human resources within the business.

There was a clear recognition by senior managers that unless they knew where and how capability was created and supported that effective workforce planning would elude the organisation. In order for the more traditional approaches to reviewing job roles, competencies, and staff mix etc to be effective, these traditional and important activities needed specific strategic input.

The main objective of the TCBP was for the developer to conduct a systemic assessment of VicRoads technical capability, or know-how, and report findings via a

standardised assessment framework. In particular, the reporting framework needed to factor in a manager's need to know:

- Technical expertise areas reported were considered important and link directly to achieving VicRoads strategic directions.
- Where technical capability (know-how) was at risk of being diluted or lost.
- Where and capability was held and by whom and to what levels.
- Opportunities to improve the effectiveness of operations by up-skilling the workforce (i.e. tapping into the hidden internal skills market) and to manage the next generation of technical leaders (talent management and succession planning).
- Reasonable and trustworthy estimates of future capability needs.
- Probable knowledge transfer challenges confronting managers.
- Extent of capability gaps and cost effective solutions to address them in priority areas.

In order for any management tool to provide this type of insight, a necessary pre-condition is to ensure the content of technical skill surveys accurately reflects areas critically important to sustaining VicRoads operations. The technical skills discovery process involved confirming priority technical expertise areas from the Corporate Management Group. In order to develop the content of these Technical Expertise Areas (TEAs) the developer established a series of Expert Reference Groups (ERGs). Document analysis and field observations also contributed to the collection of data used to compile the capability inventories to be checked by each ERG. Once the ERG members checked and re-checked various drafts the contents were placed into a standardised survey shell. The data was then gathered from staff's self-assessments and the developer was able to convert ratings made by staff into a series of capability performance metrics. The process involves the developer then checking scores with manager has to ensure they final spreadsheets reflect a reasonable and accurate reflection of staff's and the business areas capability. John Creswell et al (2003) describes this approach as mixed methods and practitioner centred research. The objective of member checking is to ensure the results are sufficiently trustworthy that managers believe they can act on the recommendations.

## 2. FINDINGS

From VicRoads experience, the organisation has learned that making decisions about technical capability building is nearly impossible when relying on methods that are subjective, inconsistent, not tailored to the organisation's core or unique expertise areas, or because the results are not meaningful enough to support objective and accurate decision making.

When the VicRoads Technical Capability Building System (TCBP) was applied correctly, it created predictive data and proved to be a useful capability building decision-making tool valued by managers. Technical directors in particular value the TCBP because it helps them in understanding their future HR challenges and workforce planning needs.

The survey based profiling system with its embedded capability and 'learning taxonomy' (Bloom 1956), has multifaceted uses for technical capability building. These uses include: corporate risk management reporting (which is critical in setting organisational development priorities); classifying different capability challenges confronting managers across the organisation; workforce forecasting & planning; recruitment; retention; talent identification; and maximising skills utilisation (i.e. tapping into the hidden skills market latent within VicRoads). This is in addition to benchmarking capability levels required by the business and clarifying the size of the capability building challenge, now and into the future.

From these learnings, VicRoads takes the position that technical knowledge is a complex and multidimensional human condition; which encompasses many forms, such as explicit, tacit, tangible and intangible knowledge. Along with Snowden (2002:2) VicRoads subscribe to the view that 'managing *[technical]* knowledge is more akin to managing a complex ecology of independence, unpredictable and fluid entities than it is to designing and maintaining a sophisticated machine' [Italics mine].

As describe by Kuhn, Woog and Hodgson (2003), knowledge refers to a variety of ideas, skills and techniques, facts, propositions, information as well as rituals, symbols, and other artefacts of these things. Rituals, symbols and other artefacts are areas of discovery still to be made and are related to theory on organisational culture (Bolman and Deal 1997). In this respect, a similar assessment approach is proposed to help produce technical culture

profiles that in turn may facilitate a more complete (holistic) understanding of what makes VicRoads technical capability tick by undertaking assessment of organisational culture within the business.

In describing and discussing the dynamic and complex nature of technical knowledge in VicRoads, including its creation, access and use, it was found that two forms of technical knowledge emerged: 1) borrowed technical knowledge; and VicRoads generated technical knowledge.

Borrowed technical knowledge is available from the open market and can be characteristically represented and 'stored' in books or other media, such as formulas, calculations, drawings, technical logs and manuals and other recordings and is commonly brought into organisations by Universities, TAFE (polytechnics), consultants, or staff (agents) returning from conferences, workshops, or knowledge available from educational institutions.

Generated knowledge is created inside the organisation by the individual or work group and does not exist outside the boundary (time and space) of VicRoads. Generated knowledge as, I prefer to describe it, is 'constructed' either form directly modifying or adapting existing borrowed knowledge or from indirect novel insight or conceptualisation resulting from reflection on practice. From our experience technical capability building (know-how), is formed and maintained by synthesis of borrowed and generated knowledge.

An interesting feature of the VicRoads Technical Capability Building Program is its ability to sort and categorise capability according to its borrowed or generated source. This helps internal organisational development consultants to quickly and accurately position development programs to meet the business development needs and that of individual employees. This may include on-the-job integrated work development programs, in-house training or the hire of external consultants and providers with specialist development expertise.

It was also discovered that the TCBP and management tool improves the business areas 'demand-side' approach to workforce planning. It does this by clarifying the businesses short, medium and longer term recruitment/retention needs; it aids talent identification and management; and encourages managers taking a strategic approach to defining their recruitment needs (e.g., by revealing the capability impact of hiring staff at graduates/school leavers and cadet level compared to the hire of mid-career competent practitioners; and/or practitioners with advanced level or specialist expert level capability).

### **3. WHERE TO NOW**

Continual refinement and improvement to the capability management tool's reporting features is required. A key aspect of ensuring the TCBP is also sustainable to automate the data gathering and reporting process so little or no manual intervention is required. To this end, the developer has embarked on a 'Proof of Concept' project so staff surveys, data and creation of technical spreadsheets can be automatically generated. This will enable updated technical capability profiles to be printed at any time and free up the developer to assist with overcoming challenges to implementation of development recommendations.

#### **POST SCRIPT**

*Work has started to deploy the TCBP and reporting management tool across VicRoads registration and licensing customer service centres. Thirty-eight centres will be benchmarked and major patterns, themes and opportunities for capability and workforce development will be reported.*

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